

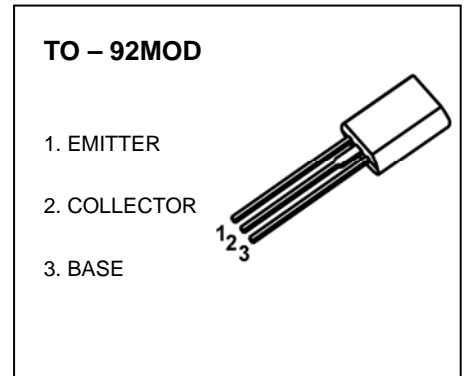


TO-92MOD Plastic-Encapsulate Transistors

2SC2229 TRANSISTOR (NPN)

FEATURES

- High Breakdown Voltage
- High Transition Frequency

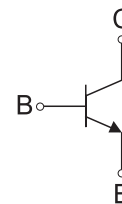


MARKING



C2GGJ=Device code
 Solid dot= Green molding compound device,
 if none, the normal device
 XXX=Code

Equivalent Circuit



ORDERING INFORMATION

Part Number	Package	Packing Method	Pack Quantity
2SC2229	TO-92MOD	Bulk	500pcs/Bag
2SC2229-TA	TO-92MOD	Tape	2000pcs/Box

MAXIMUM RATINGS (T_a=25 °C unless otherwise noted)

Symbol	Parameter	Value	Unit
V _{CB0}	Collector-Base Voltage	200	V
V _{CE0}	Collector-Emitter Voltage	150	V
V _{EBO}	Emitter-Base Voltage	5	V
I _C	Collector Current -Continuous	50	mA
P _C	Collector Power Dissipation	800	mW
R _{θJA}	Thermal Resistance From Junction To Ambient	156	°C/W
T _J , T _{stg}	Operation Junction and Storage Temperature Range	-55 to +150	°C

ELECTRICAL CHARACTERISTICS

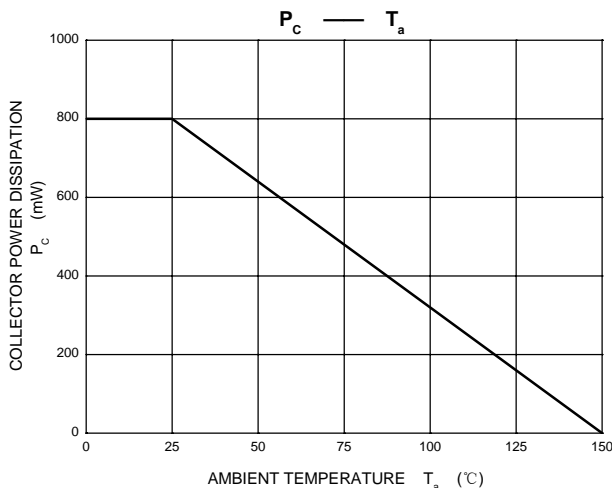
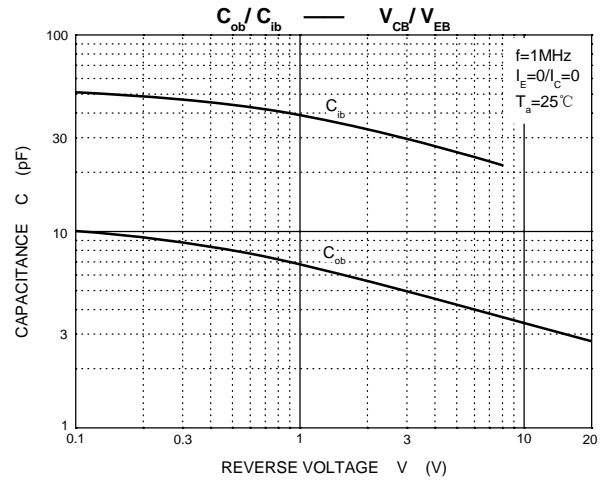
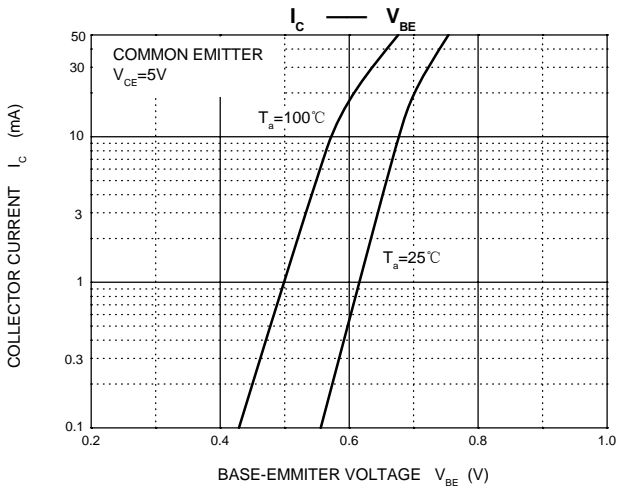
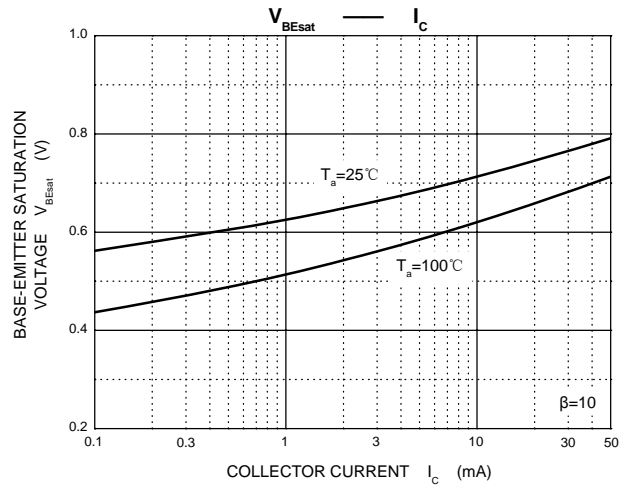
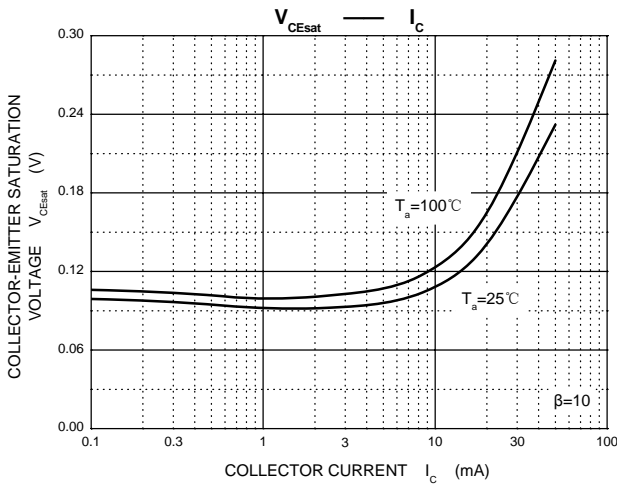
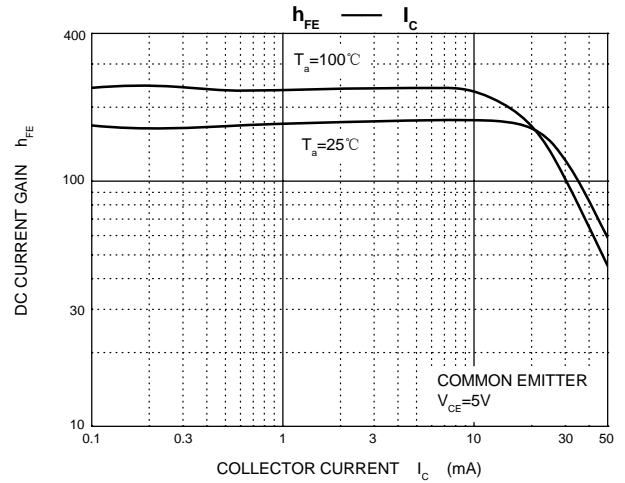
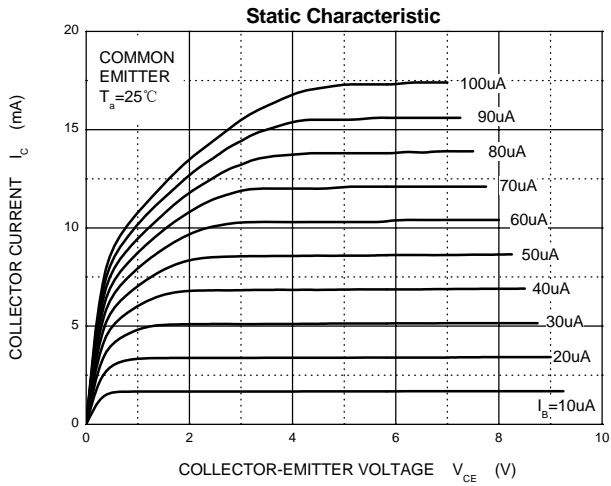
$T_a=25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}, I_E=0$	200			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0$	150			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}, I_C=0$	5			V
Collector cut-off current	I_{CBO}	$V_{CB}=200\text{V}, I_E=0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=5\text{V}, I_C=0$			0.1	μA
DC current gain	$h_{FE(1)}$	$V_{CE}=5\text{V}, I_C=10\text{mA}$	70		240	
	$h_{FE(2)}$	$V_{CE}=5\text{V}, I_C=1\text{mA}$	50			
	$h_{FE(3)}$	$V_{CE}=5\text{V}, I_C=50\text{mA}$	50			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=10\text{mA}, I_B=1\text{mA}$			0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=10\text{mA}, I_B=1\text{mA}$			1	V
Transition frequency	f_T	$V_{CE}=30\text{V}, I_C=10\text{mA}$	80			MHz

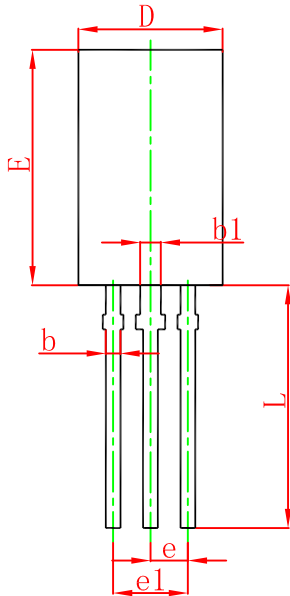
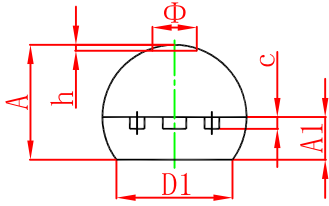
CLASSIFICATION OF $h_{FE(1)}$

RANK	O	Y
RANGE	70-140	120-240

Typical Characteristics

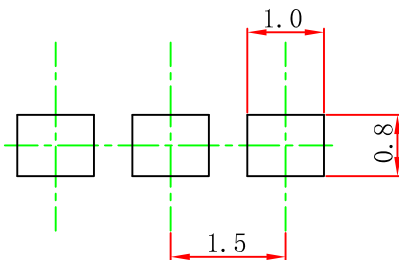


TO-92MOD Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.800	5.000	0.189	0.197
A1	1.730	2.030	0.068	0.080
b	0.440	0.600	0.017	0.024
b1	0.940	1.100	0.037	0.043
c	0.350	0.450	0.014	0.018
D	5.900	6.100	0.232	0.240
D1	4.000		0.157	
E	8.500	8.700	0.335	0.343
e	1.500 TYP.		0.059 TYP.	
e1	2.900	3.100	0.114	0.122
L	13.800	14.200	0.543	0.559
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015

TO-92MOD Suggested Pad Layout



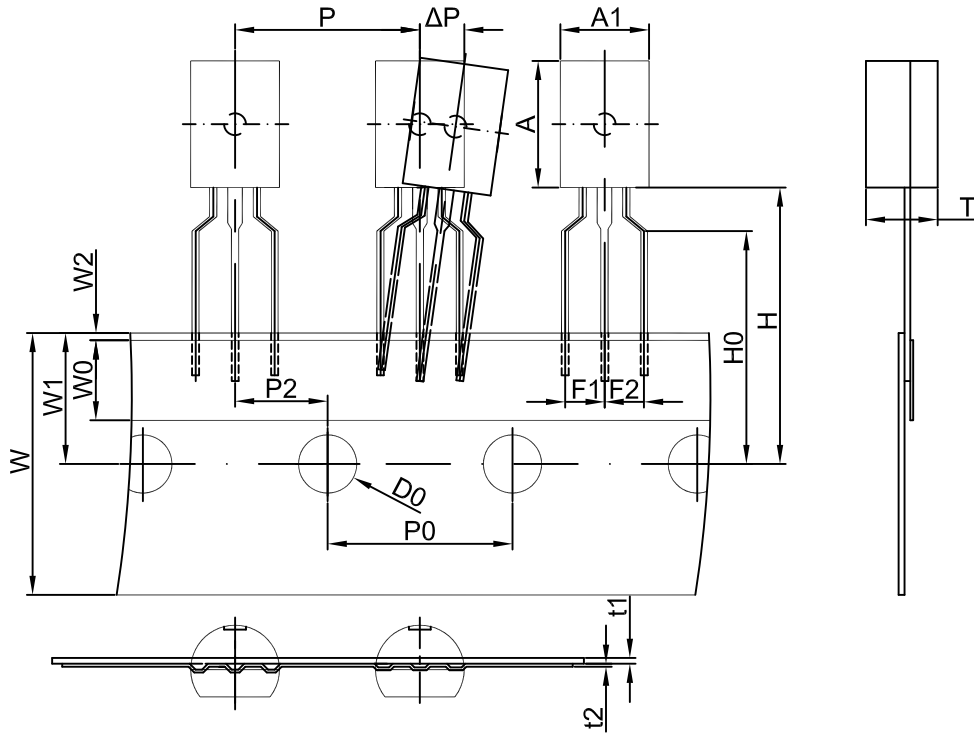
Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05 mm.
3. The pad layout is for reference purposes only.

NOTICE

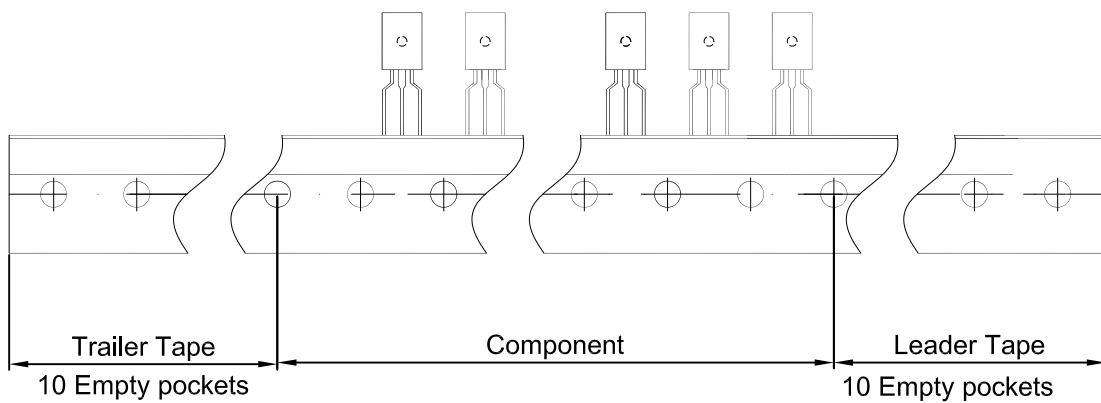
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TO-92MOD PACKAGE TAPING DIMENSION



Dimensions are in millimeter

A1	A	T	P	P0	P2	F1	F2	W
6.0	8.6	4.9	12.7	12.7	6.35	2.5	2.5	18.0
W0	W1	W2	H	H0	D0	t1	t2	ΔP
6.0	9.0	1.0	19.0	16.0	4.0	0.4	0.2	0



Package	Box	Box Size(mm)	Carton	Carton Size(mm)
TO-92MOD	2000 pcs	333×245×43	20,000 pcs	573×404×266